

## WHAT IS CLAIMED IS:

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1. A method for migrating data having a first format type to a second format type, comprising:
    - adding at least one drive to a system controller controlling a predetermined number of storage devices arranged in a digital array storage devices to form a system drive; and
    - converting data in a first format type on the digital array of storage devices to a format of a second type on the added at least one drive.
  2. The method of claim 1 wherein the adding at least one drive further comprises:
    - formatting a first drive in the second format type; and
    - adding the first drive formatted in the second format type to the system drive of the system controller.
  3. The method of claim 2 wherein the converting further comprises:
    - re-laying out data stored on the predetermined number of storage devices arranged in the digital array storage devices forming the system drive using the predetermined number of storage devices and the added first drive formatted in the second format type;
    - adding second drive formatted in the second format type to the system controller; and
    - migrating data of first format type from one of the predetermined number of storage devices to the added second drive in the second format type.

1 4. The method of claim 3 wherein the migrating is performed by the  
2 system controller using a background process.

1 5. The method of claim 4 wherein the system controller performs data  
2 writes to both the one of the predetermined number of storage devices and the  
3 added second drive during the migration performed by the background process.

1 6. The method of claim 3 wherein the one of the predetermined number  
2 of storage devices is removed after the migration is completed, an additional drive  
3 formatted in the second format type is added in its place and data of the first format  
4 type from another of the predetermined number of storage devices is migrated to the  
5 additional drive in the second format type.

1 7. The method of claim 3 wherein the migrating is performed by the  
2 system controller using a regeneration function when the one of the predetermined  
3 number of storage devices fails before the migration has completed.

1 8. The method of claim 2 wherein the converting further comprises:  
2 re-laying out data stored on the predetermined number of storage devices  
3 arranged in the digital array of storage devices forming the system drive using the  
4 predetermined number of storage devices and the added first drive formatted in the  
5 second format type;

6 removing one of the predetermined number of storage devices arranged in  
7 the digital array of storage devices forming the system drive;

8 reformatting the removed storage device to the second format type;

9 reinstalling the reformatted storage device; and

10 rebuilding data in the first format type onto the reinstalled storage device in  
11 the second format type using a regeneration function.

1 9. The method of claim 1 wherein the adding at least one drive to a  
2 system controller further comprises:

3 selecting drives to create a mirror system drive; and

4 formatting the mirror system drive using the second format type.

1 10. The method of claim 9 wherein the converting data further comprises  
2 copying data from the predetermined number of storage devices arranged in the  
3 digital array storage devices in the first format type to the mirror system drive in the  
4 second format type.

1 11. The method of claim 10 wherein the system controller performs data  
2 writes to both the system drive and the mirror system drive during the copying of the  
3 data to the mirror system drive.

1 12. The method of claim 11 wherein the system drive is removed after  
2 completion of the copying process.

1 13. The method of claim 11 wherein the first format type is 512 bytes per  
2 sector and the second format type consists of one selected from the group  
3 comprising 520 bytes per sector, 524 bytes per sector and 528 bytes per sector.

1 14. A storage system, comprising:  
2 a plurality of storage devices forming a system drive, the plurality of storage  
3 devices formatted in a first format type;  
4 a system controller, coupled to the plurality of storage devices, for controlling  
5 the plurality of storage devices forming the system drive; and  
6 at least one additional drive formatted in a second format type, coupled to the  
7 system controller, wherein the system controller converts data in a first format type  
8 on the plurality of storage devices to a format of a second type on the at least one  
9 additional drive.

1 15. The storage system of claim 14 wherein the at least one drive further  
2 comprises a first drive formatted in the second format type.

1           16.    The storage system of claim 15 wherein the system controller converts  
2 data in a first format type on the plurality of storage devices to a format of a second  
3 type on the first drive formatted in the second format type by re-laying out data  
4 stored on the plurality of storage devices and the added first drive formatted in the  
5 second format type, adding a second drive formatted in the second format type to  
6 the system controller; and migrating data of first format type from one of the plurality  
7 of storage devices to the added second drive in the second format type.

1           17.    The storage system of claim 16 wherein the migrating is performed by  
2 the system controller using a background process.

1           18.    The storage system of claim 17 wherein the system controller performs  
2 data writes to both the one of the plurality of storage devices and the added second  
3 drive during the migration performed by the background process.

1           19.    The storage system of claim 16 wherein the one of the plurality of  
2 storage devices is removed after the migration is completed, an additional drive  
3 formatted in the second format type is added in its place and data of the first format  
4 type from another of the plurality of storage devices is migrated to the additional  
5 drive in the second format type.

1           20.    The storage system of claim 16 wherein the migrating is performed by  
2 the system controller using a regeneration function when the one of plurality of  
3 storage devices fails before the migration has completed.

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1           21.    The storage system of claim 15 wherein the system controller converts  
2 data in a first format type on the plurality of storage devices to a format of a second  
3 type on the first drive formatted in the second format type by re-laying out data  
4 stored on the predetermined number of storage devices arranged in the digital array  
5 of storage devices forming the system drive using the predetermined number of  
6 storage devices and the added first drive formatted in the second format type,  
7 removing one of the predetermined number of storage devices arranged in the  
8 digital array of storage devices forming the system drive, reformatting the removed  
9 storage device to the second format type, reinstalling the reformatted storage device  
10 and rebuilding data in the first format type onto the reinstalled storage device in the  
11 second format type using a regeneration function.

1           22.    The storage system of claim 14 wherein the at least one drive further  
2 comprises a plurality of additional storage devices arranged to form a mirror system  
3 drive, wherein the plurality of additional storage devices arranged to form the mirror  
4 system drive are formatted using the second format type.

1           23.    The storage system of claim 22 wherein the system controller converts  
2 data by copying data from the plurality of storage devices in the first format type to  
3 the mirror system drive formatted in the second format type.

1           24.    The storage system of claim 23 wherein the system controller performs  
2 data writes to both the system drive and the mirror system drive during the copying  
3 of the data to the mirror system drive.

1           25.    The storage system of claim 24 wherein the plurality of storage devices  
2   forming the system drive are removed after completion of the copying process to the  
3   mirror drive.

1           26.    The storage system of claim 14 wherein the first format type is 512  
2   bytes per sector and the second format type consists of one selected from the group  
3   comprising 520 bytes per sector, 524 bytes per sector and 528 bytes per sector.